

CLAIMS

1. A kit for converting an injection molding machine to multishot operation, where the injection molding machine has a first stationary platen holding a stationary mold portion in communication with an injection cylinder and a second movable platen holding a movable mold portion joining with the stationary mold portion with movement of the movable platen along a closure axis, the injection cylinder, stationary platen and movable platen controlled by an injection molding controller, the kit comprising:

a second injection cylinder having a mounting surface adapted to attach to one of the movable and stationary platens; and

interface electronics providing an interface between the second injection cylinder and the injection molding controller.

2. The kit of claim 1 wherein the mounting surface is an adjustable bracket allowing movement of the second injection molding cylinder along the closure axis with respect to a point of attachment of the second injection molding cylinder to one of the movable and stationary platens.

3. The kit of claim 1 wherein the second injection cylinder include at least one positioning actuator for moving the second injection cylinder along its axis and wherein the interface electronics allows the injection molding controller to control the positioning actuator in coordination with movement of the stationary and movable platens.

4. The kit of claim 1 wherein the second injection cylinder includes an internal screw, and at least one ram pressure actuator controlling axial movement of the screw and one screw speed actuator controlling rotational movement of the screw and wherein the interface electronics allows the injection molding controller to control the ram pressure actuator and screw speed actuator in coordination with operation of the movement of the stationary and movable platens.

5. The kit of claim 1 wherein the second injector includes at least one actuator for operation of the second injector and wherein the kit further includes a power module for the second injector selected from the group consisting of a hydraulic power source and an electric power source.

6. A method of retrofitting an injection molding machine to multishot operation, where the injection molding machine has a first stationary platen holding a stationary mold portion in communication with an injection cylinder and a second movable platen holding a movable mold portion joining with the stationary mold portion with movement of the movable platen, the injection cylinder, stationary platen and movable platen controlled by an injection molding controller, the method comprising the steps of:

(a) attaching a second injection cylinder to one of the movable and stationary platens; and

(b) connecting interface electronics providing an interface between the second injection cylinder and the injection molding controller to the injection molding controller to coordinate the operation of the second injection molding cylinder with the movement of the stationary and movable platens.

7. The method of claim 6 wherein the second injection cylinder is attached to the stationary platen and wherein the second injection cylinder include at least one positioning actuator for moving the second injection cylinder along its axis and wherein the interface electronics allows the injection molding controller to control the positioning actuator in coordination with movement of the stationary and movable platens to engage by axial movement with the movable mold portion when the movable mold portion is joined with the stationary mold portion and to disengage by axial movement with the movable mold portion prior to separation of the movable mold portion and the stationary mold portion.

8. The method of claim 7 wherein the second injection molding cylinder is attached to the top of the stationary platen.
9. The method of claim 7 wherein the second injection molding cylinder is attached a front surface of the stationary platen holding the stationary mold portion.
10. The method of claim 7 wherein the second injection molding cylinder is attached to the stationary mold portion.
11. The method of claim 6 wherein the second injection cylinder is attached to the movable platen to engage with the movable mold portion.
12. The method of claim 11 wherein the second injection molding cylinder is attached to the top of the movable platen.
13. The method of claim 11 wherein the second injection molding cylinder is attached a front surface of the movable platen holding the movable mold portion.
14. The method of claim 11 wherein the second injection molding cylinder is attached to the movable mold portion.